NEWSLINE

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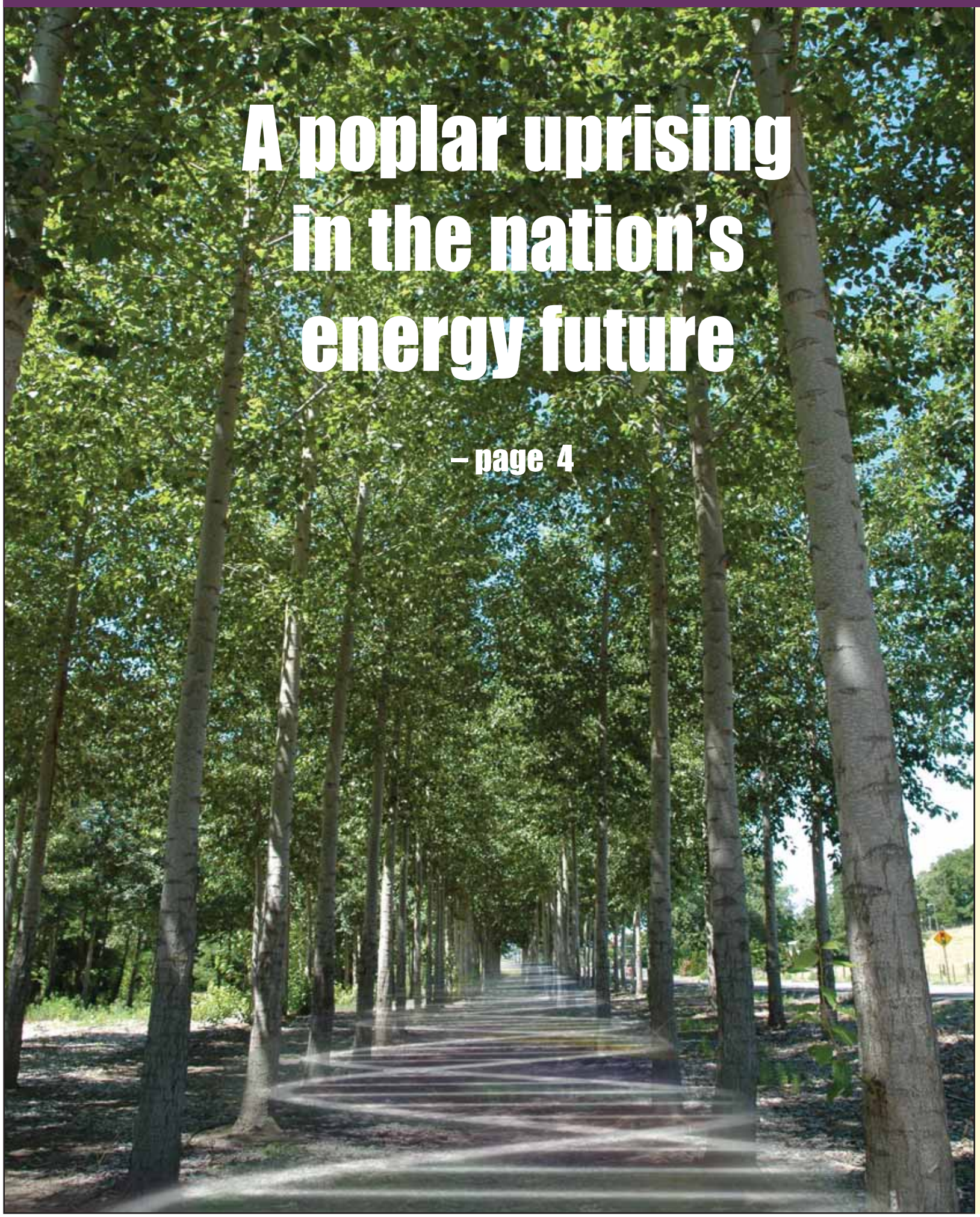

A poplar uprising in the nation's energy future

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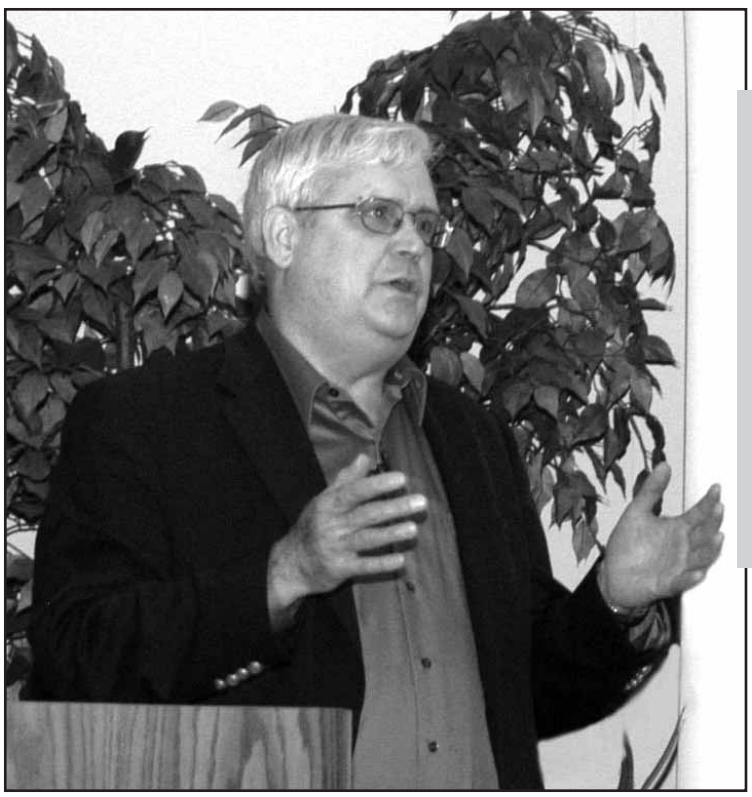
WHAT'S INSIDE

LAB NEWS

Change will bring opportunity, Miller tells employees

(Editor's note: The slides of Director George Miller's all-hands presentation are available on the Web via NewsOnLine:
https://portal.llnl.gov/portal/page/ portal/MYLLNL/FRONT_PAGE)

By Don Johnston
Newsline staff writer



JULIE KORHUMMEL/NEWSLINE

> *"Think about what you do that adds value to this Laboratory."*
>
> *– George Miller*

While the transition to a new contractor will be "difficult for all of us," Director George Miller acknowledged in an all-hands address last week, the change could also provide "lots of new opportunities."

In a comprehensive update, Miller also discussed safety, progress in national security missions, operations, program milestones, news from Washington, D.C. and awards and achievements.

Explaining why he begins each Director's Update with a "safety minute," Miller said, "I care about safety and I care about each and every one of you." While the Laboratory has made progress, he said, "We're not where we should be."

Every day and a half an employee is injured and once every three days an employee is injured resulting in a lost or restricted workday, he noted. "These accidents are, in my view, avoidable.

"A lot of safety issues boil down to common sense," Miller said. "It's really important to continue to talk about safety to raise our consciousness. It's all about attitude."

Contract and transition

Turning to contract competition, Miller noted that the National Nuclear Security Administration (NNSA) has extended the deadline for bid submissions to manage and operate LLNL from Oct. 12 to Oct. 27. "But the rest of the process remains the same.

"What we know is that a year from now there will be a different organization running the Laboratory," he said. The new contractor will no longer be a public entity; all UC employees will be offered employment at base salary; benefits must be substantially equivalent to current plans; and all existing subcontracts and agreements will continue to be honored.

Miller said the Lab continues to fulfill its mission requirements as usual and said rumors of a hiring freeze for the transition period are not true. "We will continue to hire. Strategic hiring is the lifeblood of the Laboratory."

Addressing employee questions about the transition at the conclusion of his presentation, Miller said, "This is a very difficult time for all of us. I can easily imagine that many of you go home at night with a long list of questions and concerns. I know I do. It is a change. At some level we have two jobs: we have a job to finish the work the country has asked us to do and we also have a job to recognize that a change is coming."

He said the government has instigated the change to bring about "a more business-like approach to the way we operate. They love the science. It's universally recognized as the best in the world from the DOE laboratories."

"As a long-term Lab employee, it's disconcerting because it's counter to Lab culture to sit back on your heels and wait for change to happen," Miller said. "That's not what we're good at."

Miller said it's important for employees to stay focused on performing their jobs — paying attention to safety and ensuring milestones are met. In addition, he recommended each employee "think about what we do in terms of what a new contractor might be asking of us. Think about what you do that adds value to this Laboratory."

Mission achievements

The proposed designs for the Reliable Replacement Warhead (RRW) were submitted to NNSA on time by the Laboratory and Los Alamos and Miller said he had the opportunity to review the work. "Bruce Goodwin and his team have done an outstanding job," he said, adding that a decision on the design is expected in November.

The RRW will help transform the weapons complex infrastructure, and lead to innovation in materials and fabrication techniques while meeting the needs of the Department of Defense, according to Miller.

He noted that the first Joint Laboratory Directors Joint Assessment Review was held in Livermore with LANL Director Michael Anastasio and Los Alamos weapons program leaders to address certification of the nuclear stockpile by the secretaries of Energy and Defense.

Plutonium (Pu) experiments related to stockpile stewardship at the Nevada Test Site's JASPER gas gun continue to reach "major milestones," Miller said, and have led scientists to conclude that the subtle changes in the atomic structure of Pu, induced by aging, do not limit the lifetime of nuclear weapons' pits. "This is a tremendous credit to all the scientists and engineers who work on this project."

Other achievements Miller cited included: successful Project Phoenix experiments in driving materials to the high pressures of interest to weapons scientists; risk assessment for improving Pantex throughput improvements; playing a key role in the development of the primary mirror for the BLAST telescope, which will allow astrophysicists to view starburst galaxies with extraordinary resolution; and unprecedented simulations on BlueGene/L.

"We've revolutionized the way scientists think about big computers," he said.

The National Ignition Facility (NIF) project remains on track to transition to a user facility by 2009, Miller said, noting the laser facility's multi-bundle system shot took place Sept. 12. "NIF is in the end game now."

Nonproliferation and homeland security

The Laboratory continues to make "major contributions" to nonproliferation and homeland security, Miller said, including the development of a rapid assay for foot and mouth as well as related diseases; breakthroughs in radiation detection technologies; and playing a key role in the Department of Homeland Security's air cargo explosives detection project.

In addition, Miller cited: Lab scientists' development of a virulence gene identification tool that provided the basis for a chip to identify known mechanisms of virulence and antibiotic resistance, a valuable tool for countering bioterrorism; and the National Atmospheric Release Advisory Center (NARAC) provided airborne hazards predictions in support of a major national exercise in June involving a hypothetical weapons-of-mass-destruction event in a fictitious city.

Other science and technology contributions Miller noted included: Climate scientists at LLNL led a National Academy of Science study indicating human activities have increased sea surface temperatures in hurricane breeding grounds, causing more

See **UPDATE,** *page 3*

LAB NEWS

Department of Energy publishes final polygraph rule

The Department of Energy recently published a final polygraph rule to establish new counterintelligence evaluation regulations to minimize the potential for disclosure of classified information, data and materials. The rule, published in the *Federal Register,* replaces the current DOE polygraph regulations contained at 10 CFR part 709 and requires counterintelligence evaluations for applicants of certain high-risk positions and every five years for incumbents of those positions.

The new rule marks a significant reduction in the use of polygraphs from the previous procedures that had been in place, though not in practice. The rule is effective Oct. 30.

Among the changes in the new rule:

- Routine mandatory use of polygraphs for screening and routine mandatory counterintelligence polygraphs will not be required.
- Periodic counterintelligence screening will be required for individuals in intelligence or counterintelligence, with SCI access, with continuing access to Top Secret RD or DOE-originated Top Secret NSI, or in DOE SAPs.
- For this group, mandatory polygraphs only will be required where there is an identified "foreign nexus" of counterintelligence concern or where required by another agency.

Random polygraphs may be required for this group and for those with access to Sigma 14 or 15. For more information, go to the Federal Register at http://www.gpoaccess.gov/fr/index.html and type in polygraph in the 2006 search function to retrieve the policy titled "Counterintelligence Evaluation Regulations."

UPDATE

Continued from page 2

frequent and intense storms; and Lab researchers took a lead role in the Titan "petawatt class" laser, which began combined long-pulse, short-pulse operations in July.

Operations

After reviewing the Lab's FY06 Appendix F performance ratings, Miller said, "The Laboratory has had a very good year."

The Lab is taking a proactive approach to preparing for a new federal "worker safety and health" rule, according to Miller, "The Laboratory is the first contractor in the DOE complex to submit plans for review."

Miller said DOE will conduct a "comprehensive ES&H" inspection and assessment of LLNL in FY07. He urged employees to know their ES&H responsibilities and to prepare for the assessment.

Turning to physical security, Miller provided an update on the Design Basis Threat, including the completion of a new buffer area around the Superblock, acquisition of a mobile weapons platform and vault upgrades. He also noted that NNSA has given the Laboratory sole responsibility for security for the East Avenue corridor.

Washington, D.C. and budget

Budget issues are being dominated by the upcoming elections, Miller said, noting two appropriations bills for DoD and DHS have been completed. With Congress in recess until after the election, other bills are covered by a continuing resolution through Nov. 17.

Miller said the NNSA budget is "basically flat," but that the DOE Office of Science budget is up.

Awards and recognition

Laboratory researchers won seven R&D 100 awards this year, more than any other institution, and has won 113 R&D 100 awards since 1978, Miller said.

He highlighted many other awards and recognitions garnered by Lab researchers in the last year as well as some of the breakthrough work featured in high-profile scientific journals and television.

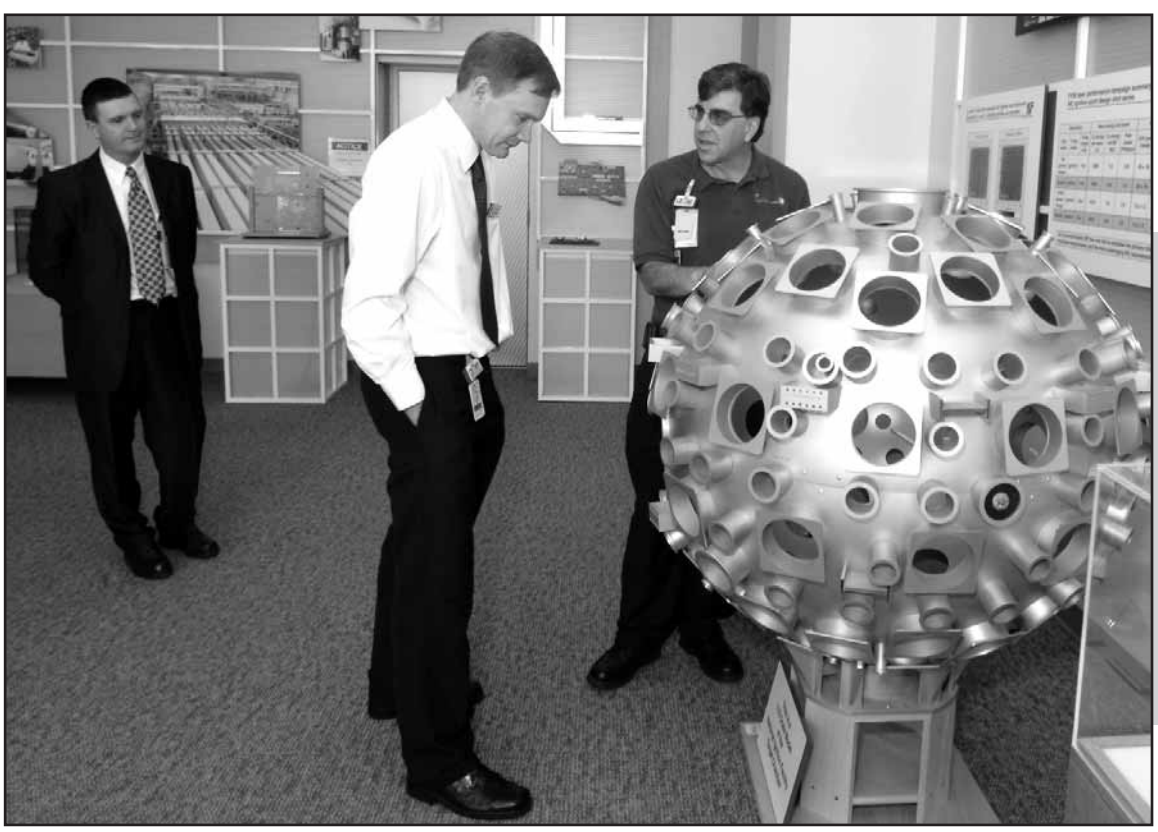
Community opinion

A recent survey by the Charlton Research Company shows that the Lab is viewed positively in the local community with 83 percent of those surveyed responding that they have a positive association with the Lawrence Livermore.

Family and coping with change

Miller concluded his update on a personal note, thanking all those who provided his family with "thoughts, prayers and expressions of concern" during the "difficult period" when his family was dealing with his grandson's premature birth and his daughter's surgery. "I'm happy to report all are now doing very well."

"It's critical we realize how important our family friends and community are to each of us. We're starting into the HOME Campaign," Miller said. "It's important for us to step back from the wonderment of the science at the Laboratory and also reflect on other important parts of our lives."



DON GONZALEZ/TID

UK defense visit

From left: Paul John Michael and Richard A. Savage of the UK Ministry of Defense receive a briefing on the National Ignition Facility from Associate Director Ed Moses Monday. The visitors from the Atomic Weapons Establishment were gathering information for the British laser project "Orion."

SCIENCE NEWS

Energy future takes root with poplar sequence

By David Gilbert
Newsline staff writer

While it may be some time yet before we can put the proverbial poplar in the tank, wood from this tree may one day factor prominently in meeting our transportation fuel needs.

The first complete DNA sequence of a tree, the poplar or black cottonwood, now provides the blueprint that may lead to the development of trees as an ideal "feedstock" for a new generation of biofuels such as cellulosic ethanol. This work, featured on the cover of the Sept. 15 edition of the journal *Science*, is the result of a four-year scientific and technical tour de force, led by the DOE Joint Genome Institute (DOE JGI) and Oak Ridge National Laboratory (ORNL). The effort united 34 institutions from around the world, including the University of British Columbia, and Genome Canada; and Umeå Plant Science Centre, Sweden.

> *"Biofuels are not only attractive for their potential to cut reliance on oil imports but also their reduced environmental impact."*
>
> *– Jerry Tuskan*

"Biofuels are not only attractive for their potential to cut reliance on oil imports but also their reduced environmental impact," said Jerry Tuskan, ORNL and DOE JGI Laboratory Science Program (LSP) leader and lead author of the *Science* study. "Biofuels emit fewer pollutants than fossil fuels such as gasoline. In addition, poplar and related plants are vital managers of atmospheric carbon. Trees store captured carbon dioxide in their leaves, branches, stems and roots. This natural process provides opportunities to improve carbon removal from the air by producing trees that effectively shuttle and store more carbon below ground in their roots and the soil. Moreover, bioenergy crops re-absorb carbon dioxide emitted when biofuels are consumed, creating a cycle that is essentially carbon neutral."

Poplar's extraordinarily rapid growth, and its relatively compact genome size of 480 million nucleotide units, 40 times smaller than the genome of pine, are among the many features making poplar an enticing model crop for biofuels production.

Among the major discoveries yielded from the poplar project is the identification of more than 45,000 protein-coding genes, more than any other organism sequenced to date, approximately twice as many as present in the human genome (which has a genome six times larger than the poplar's).

The research team identified 93 genes associated with the production of cellulose, hemicellulose and lignin, the building blocks of plant cell walls. The biopolymers cellulose and hemicellulose constitute the most abundant organic materials on earth, which by enzymatic action, can be broken down into sugars that in turn can be fermented into alcohol and distilled to yield fuel-quality ethanol and other liquid fuels.

Poplar is the most complex genome to be sequenced and assembled by a single public sequencing facility and only the third plant to date to have its genome completely sequenced and published. The first, back in 2000, was the tiny weed, *Arabidopsis thaliana*, an important model for plant genetics. Rice was the second, two years ago. *Populus trichocarpa* is one of the tallest broadleaf hardwood trees in the Western United States, native to the Pacific coast from San Diego to Alaska. The sequenced DNA was isolated from a specimen collected along the banks of the Nisqually river in Washington State.

ROY KALTSCHMIDT

DOE JGI Director Eddy Rubin (front left) and Public Affairs Manager David Gilbert (right front) ease a sapling of *Populus trichocarpa* into the ground in front of the Production Genomics Facility during the Sept. 14 poplar publication celebration. Lead and senior authors on the *Science* paper, Jerry Tuskan (back left) and Dan Rokhsar, look on with DOE JGI Operations Manager Ray Turner (back right).

DAVID HISER

This *Science* magazine cover shows the moonlit silhouette of the North American black cottonwood *Populus trichocarpa*. Because this tree has a small genome and has long been the subject of commercial and ecological studies, *P. trichocarpa* was selected as the first woody perennial plant to have its genome sequenced.

On the cover: A hybrid poplar grove in southeastern Washington.
Photo credit: David Gilbert

SCIENCE NEWS

Lab to help develop small radiation detector

By Stephen Wampler
Newsline staff writer

An LLNL-industry team is one of three teams to be awarded a program contract by the Department of Homeland Security's (DHS) Domestic Nuclear Detection Office (DNDO) to develop a personal digital assistant-sized radiation detector.

The Livermore-led team, composed of Kyocera, the California Institute of Technology, eV Products and the University of Michigan, was awarded an $8.6 million contract under DNDO's Intelligent Personal Radiation Locator (IPRL) program.

The other two teams receiving contracts, with approximately $22 million in total for the three contracts, are General Electric Global Research of Niskayuna, N.Y. and Smiths Detection of Pasadena. These three teams were selected from among 15 proposals submitted for the program.

The 27-month contracts are for the development and testing of advanced pocket-sized radiation detection prototypes. As envisioned, IPRLs would permit the rapid identification of potential radiological and nuclear threats.

"IPRL systems show real promise for the security and safety of first responders, border patrol agents, customs and coast guard officers, and other law enforcement personnel," said "Vayl Oxford, DNDO director. "Using a device that fits in the palm of a hand, homeland security personnel and first responders will know in real time if they confront a security or safety risk."

The Livermore technology, known as the Ultra Personal Radiation Locator, or UltraPeRL, will have the capability of detecting both gamma rays and neutrons. It would be able to determine the nature of the radiation source — whether it is from medical isotopes, background, or a threat.

Livermore's UltraPeRL will also have the ability to determine the direction of gamma-ray sources and to communicate with other nearby IPRLs.

LLNL electronics engineer Robert Deri is the project's principal investigator.

UltraPeRL is a follow-on technology to RadNet, a combination radiation detector-personal digital assistant-cell phone-GPS locator device, which was developed between 2002 and 2005 by researchers in LLNL's Radiation Detection Center and the Physics and Advanced Technologies directorate for the Department of Energy and DHS.

Top: The Ultra Personal Radiation Locator will be used by first responders, law enforcement personnel, Customs and Border Patrol and event staff.

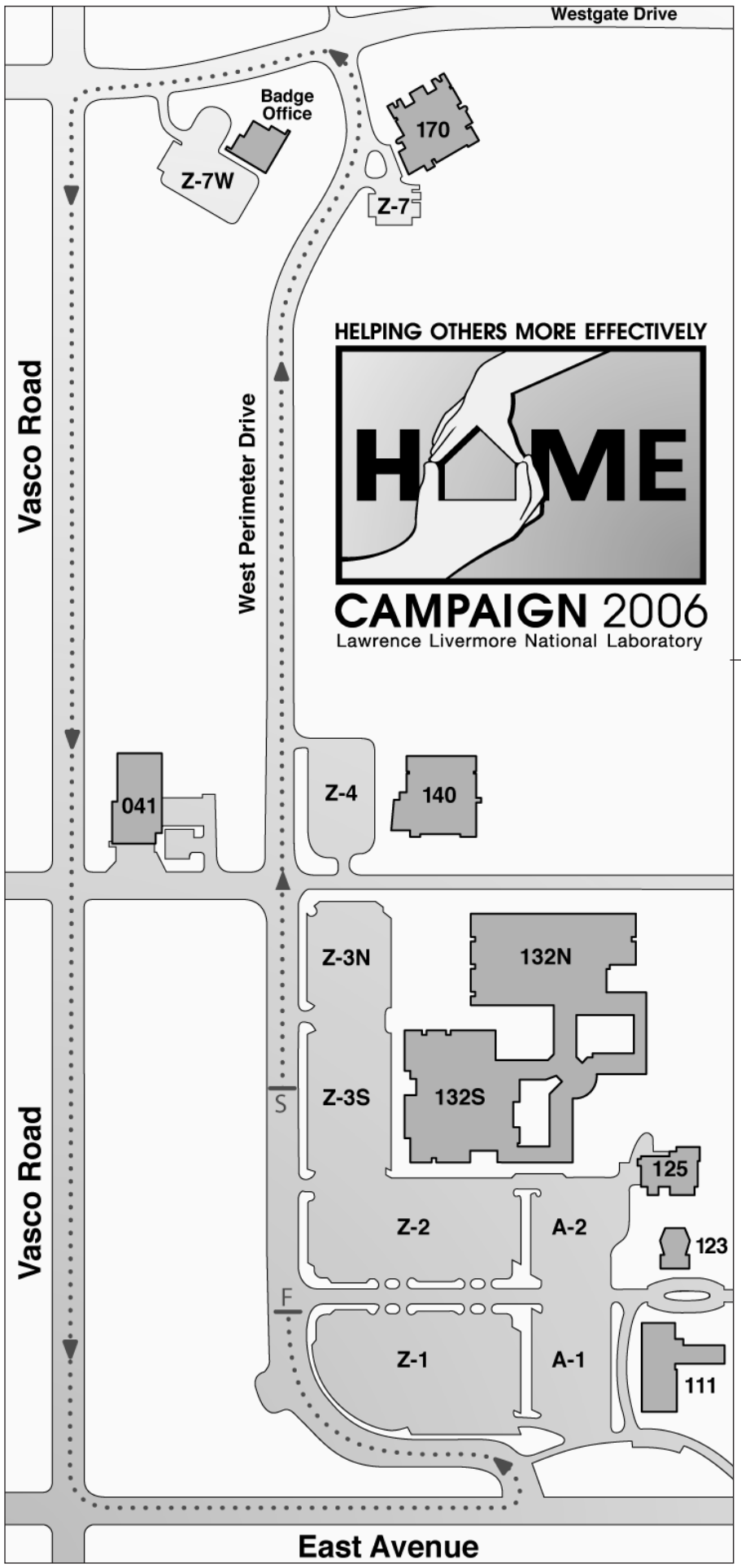
Inset: The Ultra Personal Radiation Locator, or UltraPeRL, will have the capability of detecting both gamma rays and neutrons. It would be able to determine the nature of the radiation source — whether it is from medical isotopes, background or a threat.

The early RadNet technology grew out of a 2001-03 Laboratory Directed Research and Development project to develop the first imaging telescope to focus gamma rays in searching for the remnants of exploding stars. The new telescope turned out to be about 1,000 times more sensitive than conventional technologies.

As part of that work and a later NASA effort, the Livermore scientists worked with a team from the California Institute of Technology, which had built small and effective gamma ray detectors.

"If we hadn't been involved in the astrophysics experiment, then we wouldn't have been aware of the state-of-the-art work in small gamma ray detectors and wouldn't have realized the potential of these detectors for homeland security," said Simon Labov, who helped initiate the project.

The 2006 Run for HOME is coming



Run for HOME parking lot notice

On Wednesday, Oct. 25, parking lots near Bldgs. 41, 111, 132, 140 and 170 will be closed from 11 a.m. to 2 p.m. Employees parking in lots A-1, A-2, Z-1, Z-2, Z3, Z-4 and Z-7 will not be able to leave the parking lot during the "Run for HOME."

Each year, the Run for HOME kicks off the Laboratory's annual HOME (Helping Others More Effectively) Campaign. The National Ignition Facility (NIF) is this year's sponsor of LLNL's Run for HOME.

The countdown has begun. The Run for HOME is less than two weeks away. Get out your sneakers and design your costumes to participate in the fun on Wednesday, Oct. 25, 11:30 a.m. to 1:30 p.m.

This year's theme is "Builders are Us." Participants are encouraged to come out in costume as their favorite tradesperson or in a decorated hard hat. The five costume and hard hat award categories are: most humorous, most creative, craziest, most OSHA-compliant and best large group.

All levels of runners and walkers are encouraged to participate to build support for community agencies and kick off the 2006 HOME Campaign. There will be four individual race winner awards: first place open male; first place open female; first place master (over 50) male; and first place master female. These individuals will be approached by volunteers and escorted to the award winners' table for recording purposes. After checking in, the category winners will be asked to report to the awards stage by 12:25 p.m. Here they will be awarded a monetary certificate, which they can donate to an agency of their choice. All participants who turn in a scorecard will receive a certificate of participation.

Everyone participating in the Run for HOME will receive free refreshments and a T-shirt. Music will be provided by TID's "Free Lunch" band, a classic rock and blues ensemble comprised of Technical Information Department employees.

RUN FOR HOME 2006

When
Wednesday, Oct. 25, noon

Where
The race will start on the West Perimeter Drive just outside of parking area Z-3 near Bldg. 132.

Site 300 race will take place on the 3,000 meter course at Site 300

Start time
Noon

Run distance
2.791 Kilometers
1.7334 Miles

Instructions
All participants should assemble at 11:30 a.m. in the Z-3 parking area west of Bldg. 132. Race volunteers will be situated in the starting area with signs indicating where race participants should gather for the race start.

As participants come across the finish line, they will need to note the elapsed time on the race clock. Upon crossing the finish line, all participants will be handed a scorecard and should continue moving toward the runner check-in tables. At the tables, participants will be given pencils to fill out the cards prior to depositing them into the provided boxes. From the finish card tables, participants should proceed to the T-shirt tables for their free T-shirt. Finally, they can continue to the refreshment area and to the HOME Fair tent featuring the agencies available for employee contributions through this year's campaign.

Creative and amusing costumes are always welcome.

HOME agency fair

The Administration and Human Resources Directorate (AHRD) and Biosciences and Biotechnology Divisions of Chemistry, Materials and Life Sciences Directorate are co-sponsoring the 2006 HOME Campaign.

All employees are invited to learn about some of the nonprofit agencies featured in the HOME Campaign by visiting the tented agency fair in parking lot Z-1. The fair will be open between 11:30 a.m. and 1:30 p.m. Representatives will be ready to answer questions and provide information about their agencies and how employees can build a brighter opportunity for those less fortunate within the community. Parking lots A-1, A-2, Z-1, Z-2, Z-3, Z-4, and Z-7 will be closed from 11 a.m. to 2 p.m.

Taxi service

Lab taxi service to and from the Run for HOME will be increased between the hours of 10:30 a.m. and 2 p.m. To use taxi transportation, call 2-8294 or 2-TAXI. Plan accordingly as ridership will be high.

Site 300

The Run for Home will take place at Site 300 on a 3,000 meter course comprised of a double run around Site 300 buildings, starting at Bldg. 870. (See the HOME Web page at http://home.llnl.gov/run/pdf/Site_300_Map.pdf for details.) There will be two race winner awards: first place open male and first place open female.

For more detailed information about the 2006 HOME Campaign and Run for HOME, go to the Web at http://home.llnl.gov/run/ index.htm

Retirees' corner

Don Stiles (Electronic Engineering, 1988) just returned from Europe. He spent several days in Belgium traveling to Bruges (the best-preserved medieval city in Europe), Antwerp and then to Amsterdam, the Netherlands, where he boarded a ship to cruise more than 2,000 miles through Germany, Austria, Hungary, Croatia, Serbia, Bulgaria and Romania. They passed through 72 locks on the Rhine, Main and Danube rivers. He visited several towns in each country, attended a concert in Vienna and had a hosted lunch with a family in Osijek, Croatia. He disembarked in Constanta, Romania, on the Black Sea. He then spent several days in Sinaia in the mountain landscape of Transylvania with a visit to the Bran Castle, often referred to as Dracula's Castle built in 1377. The last few days were spent in Bucharest, Romania, before returning home.

Harold and Jan Pfeifer (EPD, 1993) recently returned from a visit to Chicago for sightseeing prior to taking the AMTRAK Empire Builder to Seattle. The train stopped at various locations including Minneapolis-St Paul, Fargo, Minot, Havre, Whitefish, Spokane and Seattle. The weather en route was clear and sunny. Views included extensive grain fields recently harvested; large round bales of straw; intermediate small train stations/stops and a variety of game; i.e. deer, elk, antelope and jackrabbits. After a 40-hour train ride, they arrived in Seattle. They had comfortable first-class accommodations with delicious meals included. They saw Pike's Place Market in Seattle and the original Starbucks. It is reported Starbucks opens 12 new coffee shops daily around the world. Recommendation: "take the train; it's comfortable, scenic, relaxing and altogether enjoyable."

There is no luncheon in October. The annual retiree dinner-dance is Saturday, Oct. 28, at the Robert Livermore Community Center on East Avenue in Livermore. Doors open at 6 p.m. for hors d'oeuvres and refreshments. Dinner starts at 7 p.m., with music and dancing starting about 8 pm. Retirees must pay in advance ($25 per individual, $50 per couple) by mailing in a form that was sent around by e-mail and is on the retirees Website (http://www.llnl-retirees.org/main.html). The form and check (made out to LLNL Retirees' Assoc.) must be in by Oct. 23, five days before the dance. If you don't have computer access or need help, contact Jeff Garberson at 443-4297 or Jane Olson (number below).

Please send input to Jane or Gus Olson. E-mail: augusto @aol.com or janerubert @aol.com. Phone: (925) 443-4349; address: 493 Joyce St., Livermore, 94550.

Newsline

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For an extended list of Lab beats and contacts, see http://www.llnl.gov/pao/contact/

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People news

in memoriam

Charles Cass

Charles "Charlie" Cass died Sept. 27 at his home in Livermore. He was 62.

Cass was born on Jan. 22, 1944, in Highland Park, Ill. He retired from the Lab, where he worked as a machinist for 30 years.

Cass was known for his jokes and storytelling. He was passionate about racing, a hobby that he had since childhood. He went from being a driver to working on and mastering every aspect of the car.

He is survived by his mother, Alma Cass of Eau Claire, Wis.; children Erin Cass of Federal Way, Wash., Brian Cass of Livermore, and Kathy Cass Martinez of Livermore; and many caring friends.

A memorial service was held Oct. 4 in Livermore. Remembrances may be made in his honor to the Cardiac Rehabilitation and Wellness Program at San Ramon Regional Medical Center, 7777 Norris Canyon Road, San Ramon, 94583.

Leonard Hartwell Clark

Leonard Hartwell Clark, who held a variety of jobs during his 36 years at the Laboratory, died July 3. He was 76.

Clark was born Dec. 26, 1929, in Medfield, Mass. He moved to Livermore in 1953. He worked at Standard Oil Company and in 1954, joined the Lab where he held a variety of jobs including chauffeur to many dignitaries and physicists associated with the Lab's early years. He spent the remainder of his time at the Lab as a machine tool repairman.

In 1970, Clark moved his family to Manteca, where he and his wife joined the choir at Calvary Community Church. He retired in 1990 and for the next 14 years, traveled around the United States before settling in Phoenix in 2004. He was active in the choir at the Shiloh Community Church. He enjoyed woodworking and making metal model cars.

He leaves his wife of 54 years, Dolores; three daughters, Karen and son-in-law David Smith of Manteca, Linda Almazan and son-in-law Ken Meyer of Livermore, Nancy and son-in-law Wayne Jones of Phoenix; six grandchildren, one great grandchild; three sisters; one brother; and many nieces and nephews.

Donations may be made in Clark's name to the Hospice of the Valley, Coronado Home, 340 E. Coronado Road, Phoenix, AZ 85004-1524.

Ralph S. Hager

Ralph S. Hager, a retired Laboratory physicist and quiet activist for the disabled community, passed away at Alta Bates Hospital Sept. 29.

Hager was born in Minneapolis in 1939. After graduating from the University of Minnesota, he went on to Caltech for his Ph.D. in nuclear physics. He joined LLNL in 1968, working first in Z Division, and later in D Division. He was project manager for Army systems from 1976-78, and later worked as a systems analyst with a focus on the effectiveness of tactical weapon systems. He retired from the Lab in 1993.

Hager pursued life with passion and enthusiasm. A skilled backcountry skier mountaineer, he was also a strong bicyclist, who sought out challenging endurance events. When a bicycling accident on Claremont Avenue in 1994 left him permanently paralyzed below the shoulders, Hager threw his energy into new pursuits.

For 11 years he was a committed board member with the Center for Independent Living, serving at various times (and sometimes simultaneously) as president, vice president, and chair of the programs committee.

Hager was often featured in essays his wife Susan Parker wrote for the *San Francisco Chronicle* and *East Bay Express*. Susan, who still writes for the *Berkeley Daily Planet*, provided a moving description of life after the accident in her book "Tumbling After."

Hager is survived by his children, Mindy and Jeff Hager, his sister Phyllis Brown, his brother Richard Hager, his wife, Susan Parker, five nieces, extended family, devoted friends and caregivers. A private service will be held in his honor on Oct. 15. Donations in Hager's name can be made to the following two organizations that he loved and supported: The Center for Independent Living and Center for Accessible Technology, both based in Berkeley.

SCIENCE EDUCATION

Poster performance

JACQUELINE MCBRIDE/NEWSLINE

Cherry Murray (left) studies Aaron Fisher's poster, "Simulation of Supercontinuum Generation in a Crystal Fiber." Brian Bonner (right) ponders Amy Lazicki's research data.

The University Relations Program held the seventh annual SEGRF (Student Employee Graduate Research Fellowship) Program's poster symposium on Tuesday in the West Cafeteria. Thirty-five SEGRF participants discussed their research with Lab scientists, researchers, postdocs and student employees. Cherry Murray, left, deputy director for Science and Technology, attended the session. For more information about the SEGRF program, contact Joanna Allen, 3-9225, or allen64@llnl.gov.

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